



Should Credit Remarks be Forgotten?

Evidence from Legally Mandated Removal

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The design of credit bureaus is an important policy issue

- Screening effect: information helps make financial institutions more efficient in screening and monitoring their customers
- Access to credit Credit bureaus are positively associated with increased credit

- *Djankov, McLiesh, and Shleifer (2007)*
- *Brown, Jappelli, and Pagano (2007)*



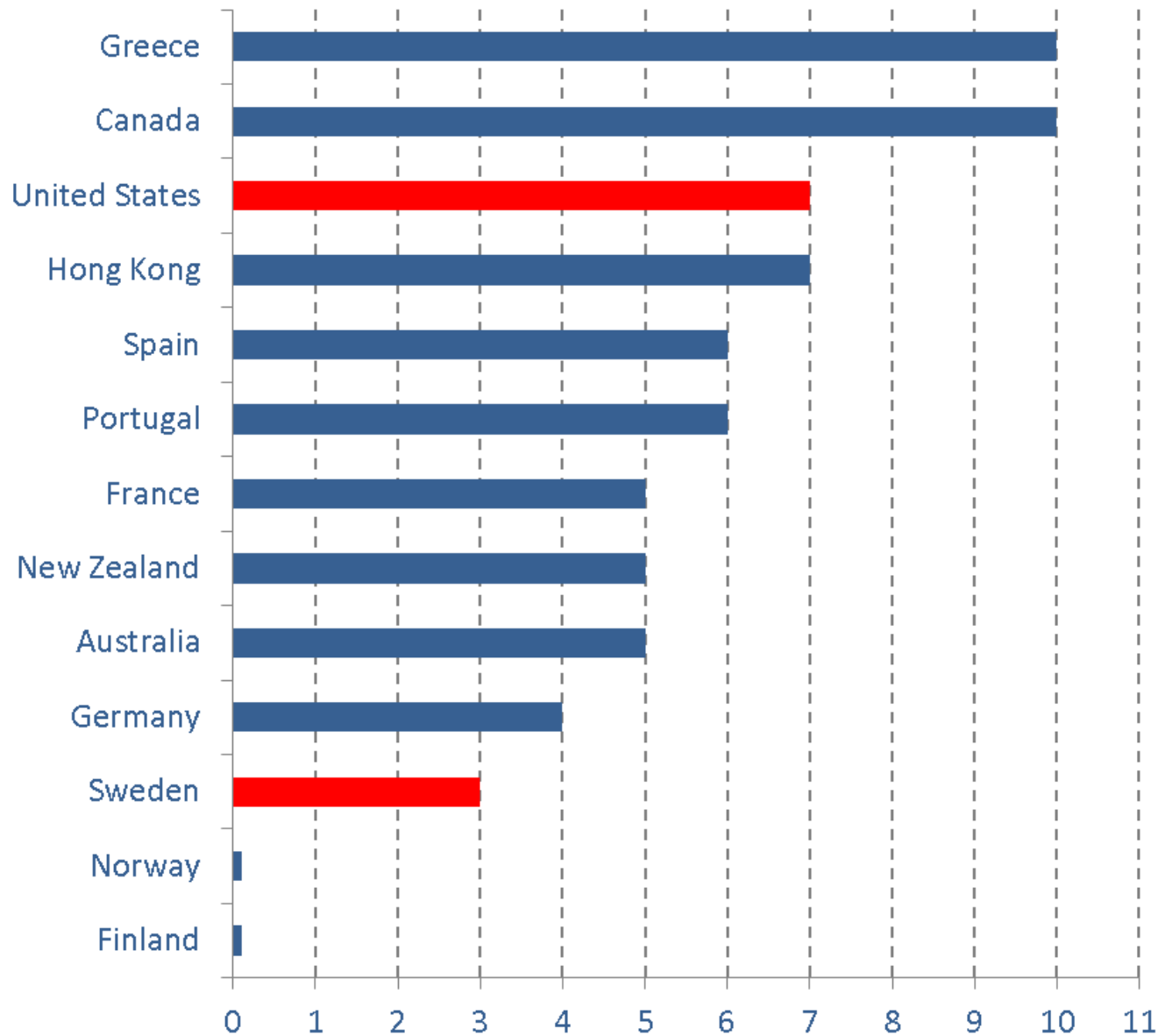
- Credit bureaus register
 - credit arrears = defaults = delinquencies =
6 months late on a payment
- Up to 2007: 9% of the US population, 6% in Sweden
- In Sweden three ways to receive an arrear:
 - Government claims >> 'kronofogden' >> arrear
 - Private claims >> private debt collection >>
>> 'kronofogden' >> arrear
 - Misbehavior at Bank >> arrear



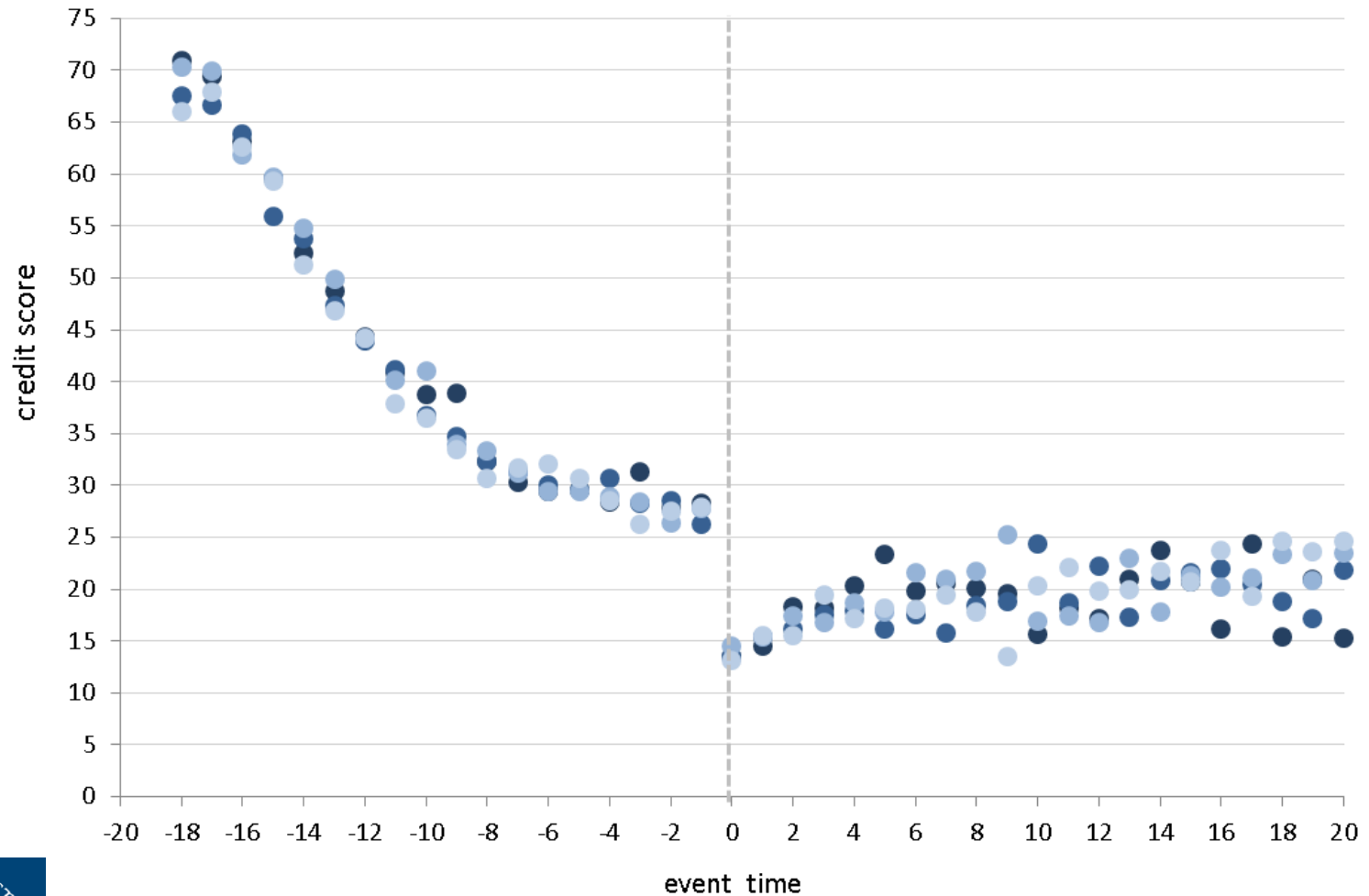
- Serious consequences
 - Reduced (closed) credit access
 - Hamper households ability to smooth consumption
 - unexpected health expenses, personal setbacks
 - Sweden > difficult to get phone, rent, mortgage, job
- Mitigate this effect governments restrict retention time negative information
 - 90% of credit bureaus restrict some reporting of adverse information



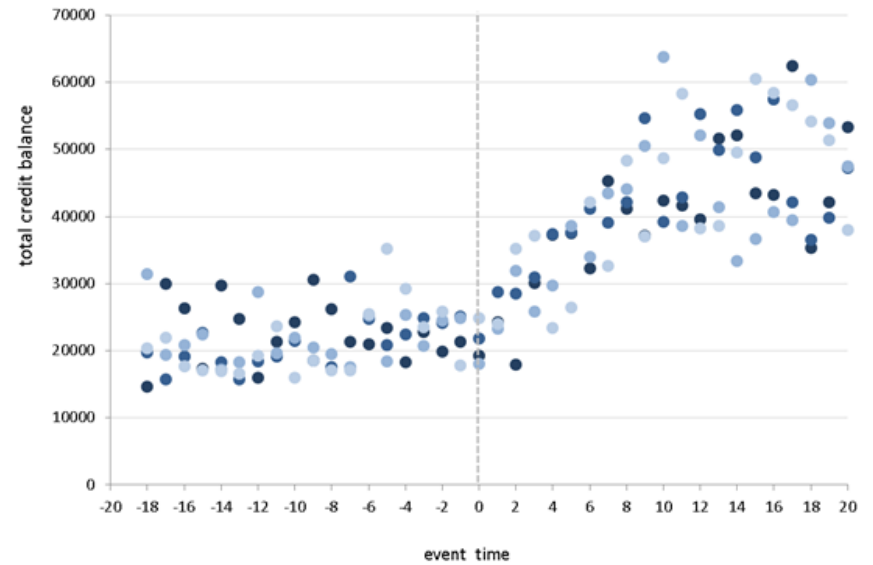
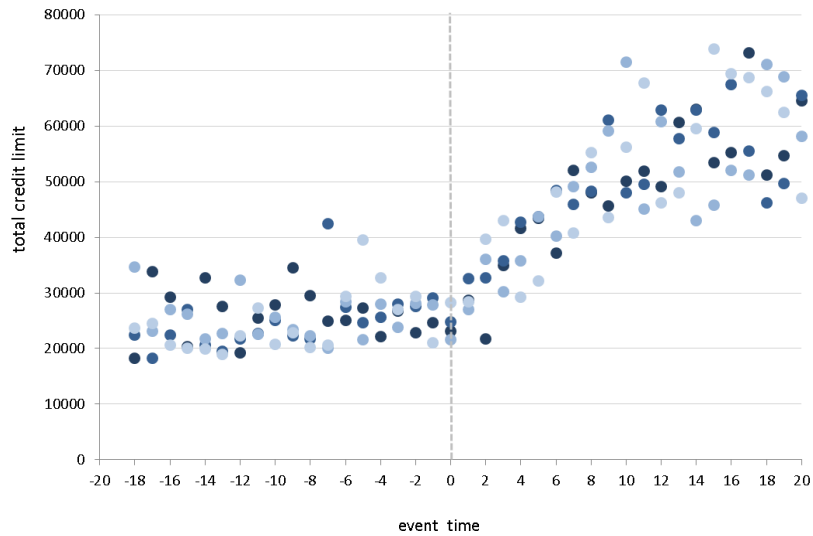
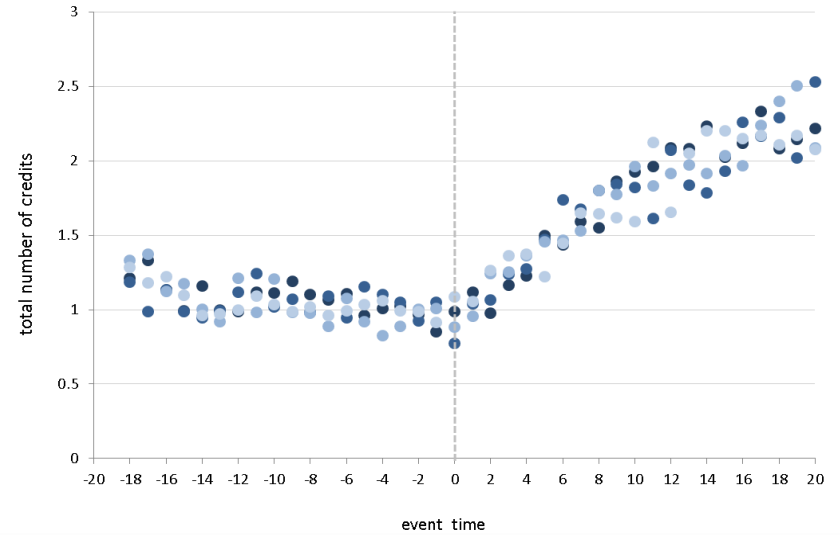
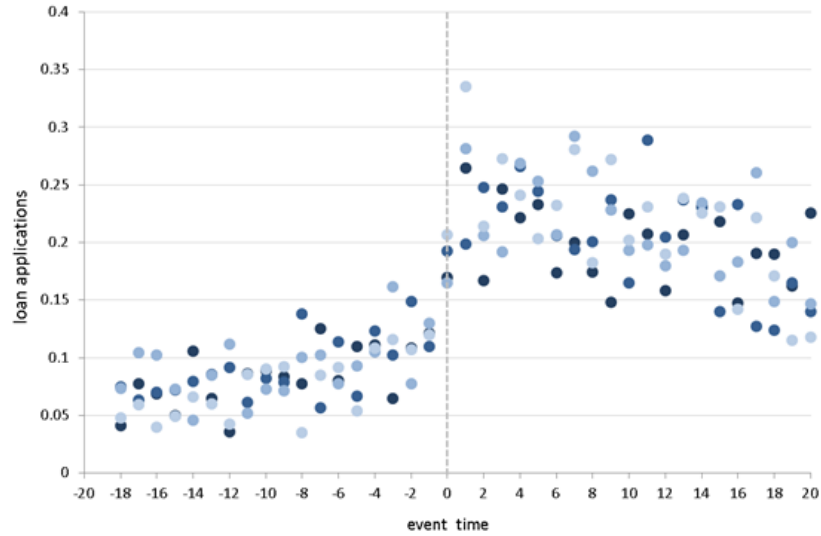
Motivation: Retention times in years



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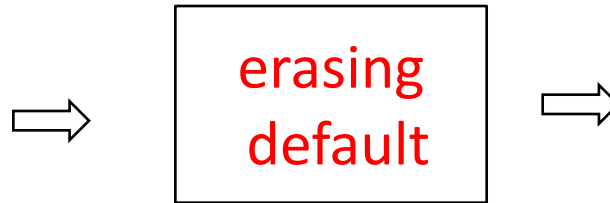


- The optimal "memory" of a bureau is not known

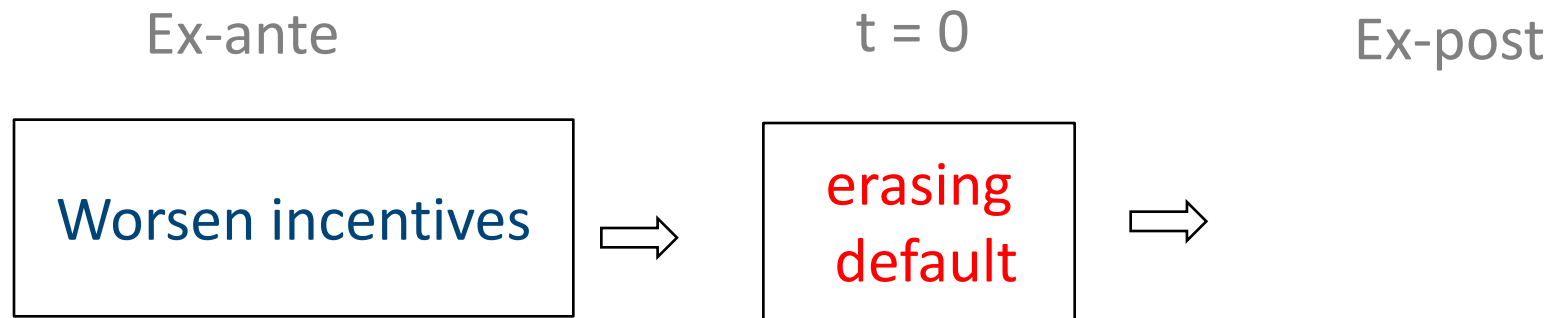
Ex-ante

$t = 0$

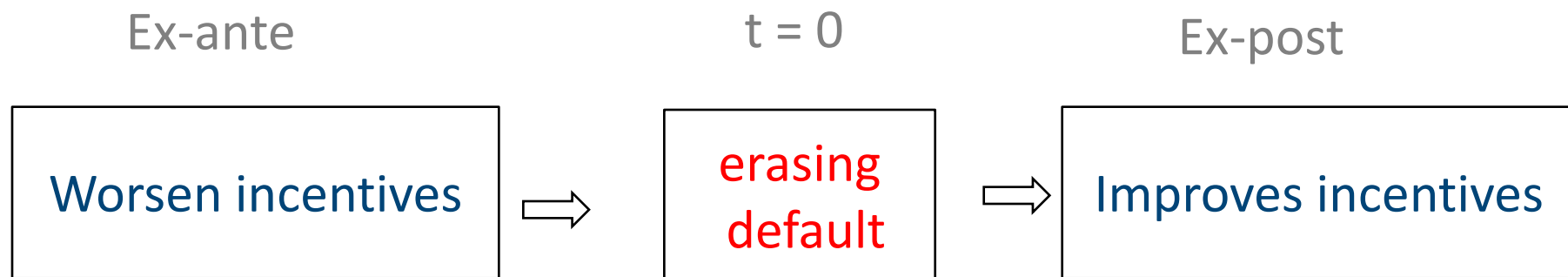
Ex-post



As Elul and Gottardi (2007) point out:



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Exploite the quasi experimental variation in retention times caused by a regime switch by the credit bureau:

➤ How does an increased retention time affect the post-removal:

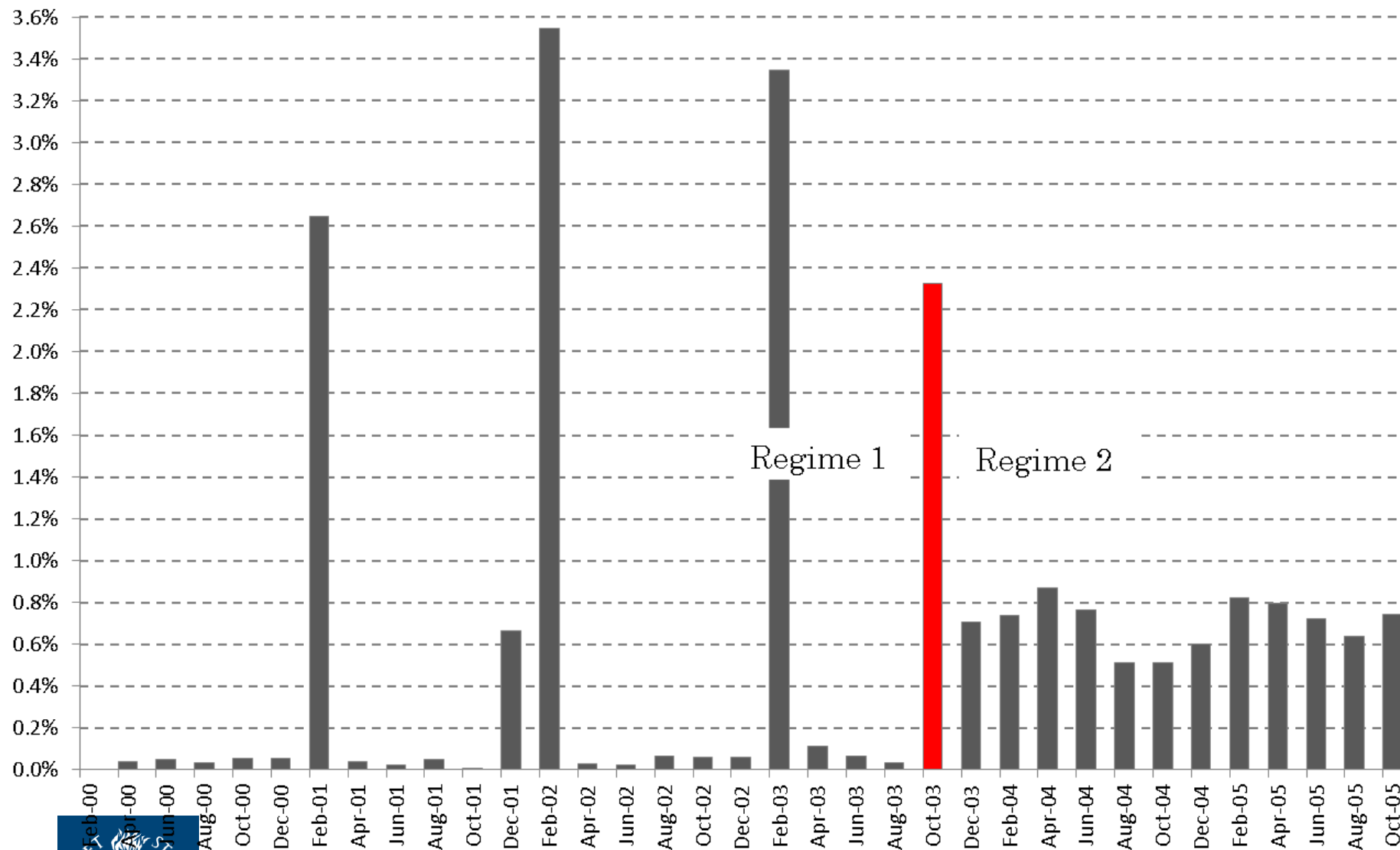
- Creditscores
- Credit need
- Credit access, usage
- Risk to default again



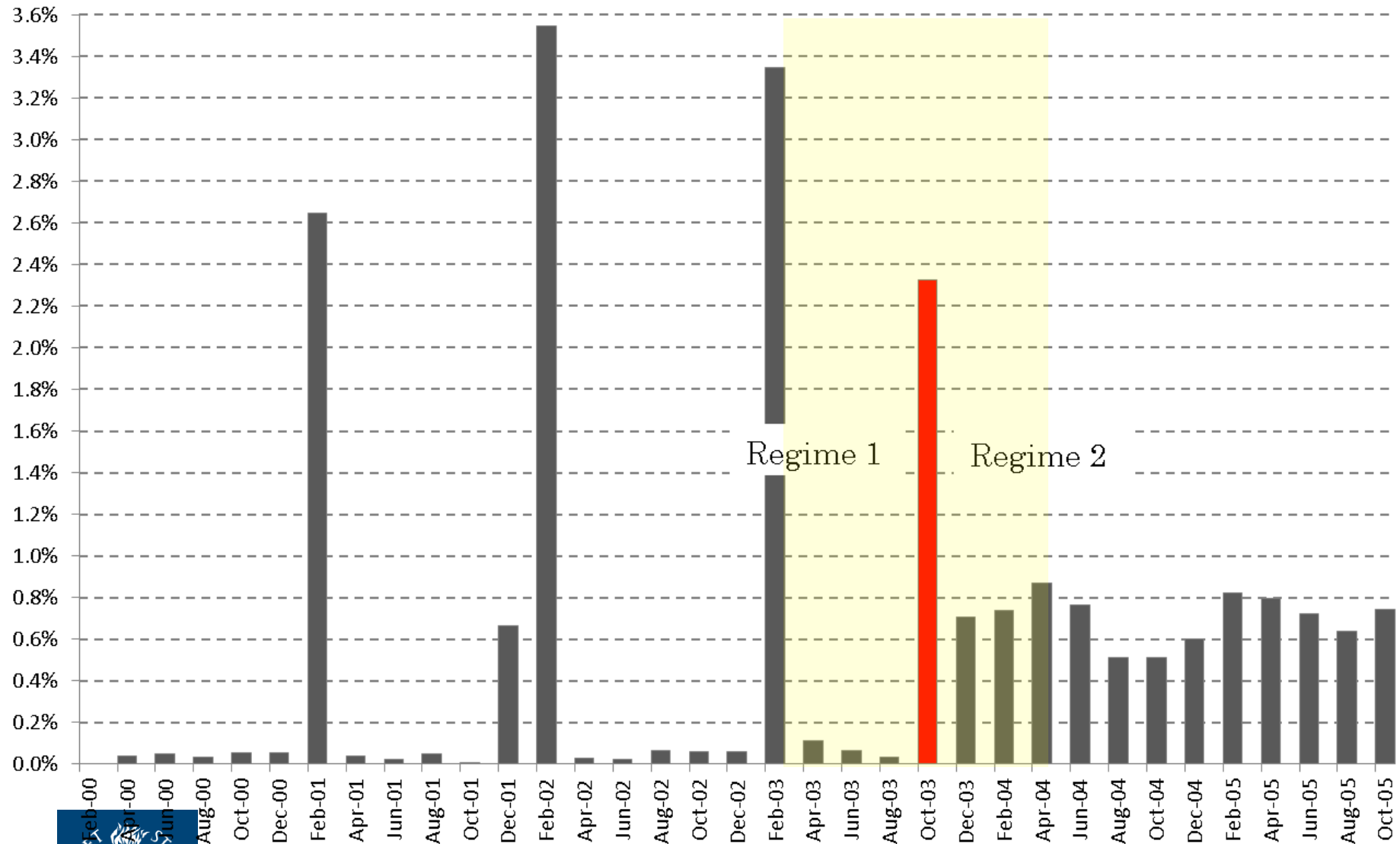
- Panel data, random sample 15,683 individuals
- Bi-monthly
- February 2000 – October 2005
- Full credit reports, 63 variables
 - Government > tax information
 - Banks > outstanding non-collateralized debt
 - Credit score = default risk
 - Arrears



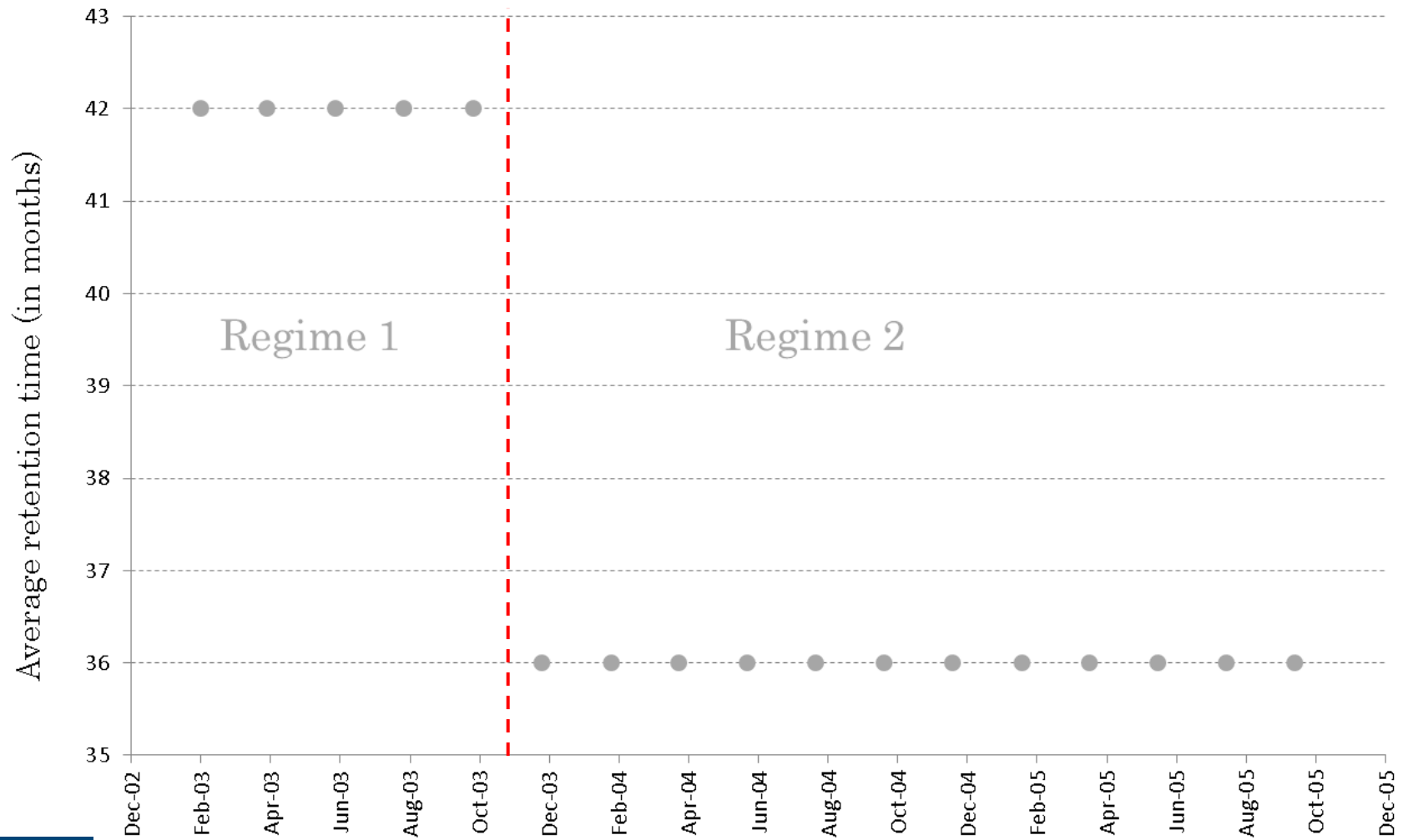
Background: exogenous variation in retention times



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Background: discontinuity in retention times

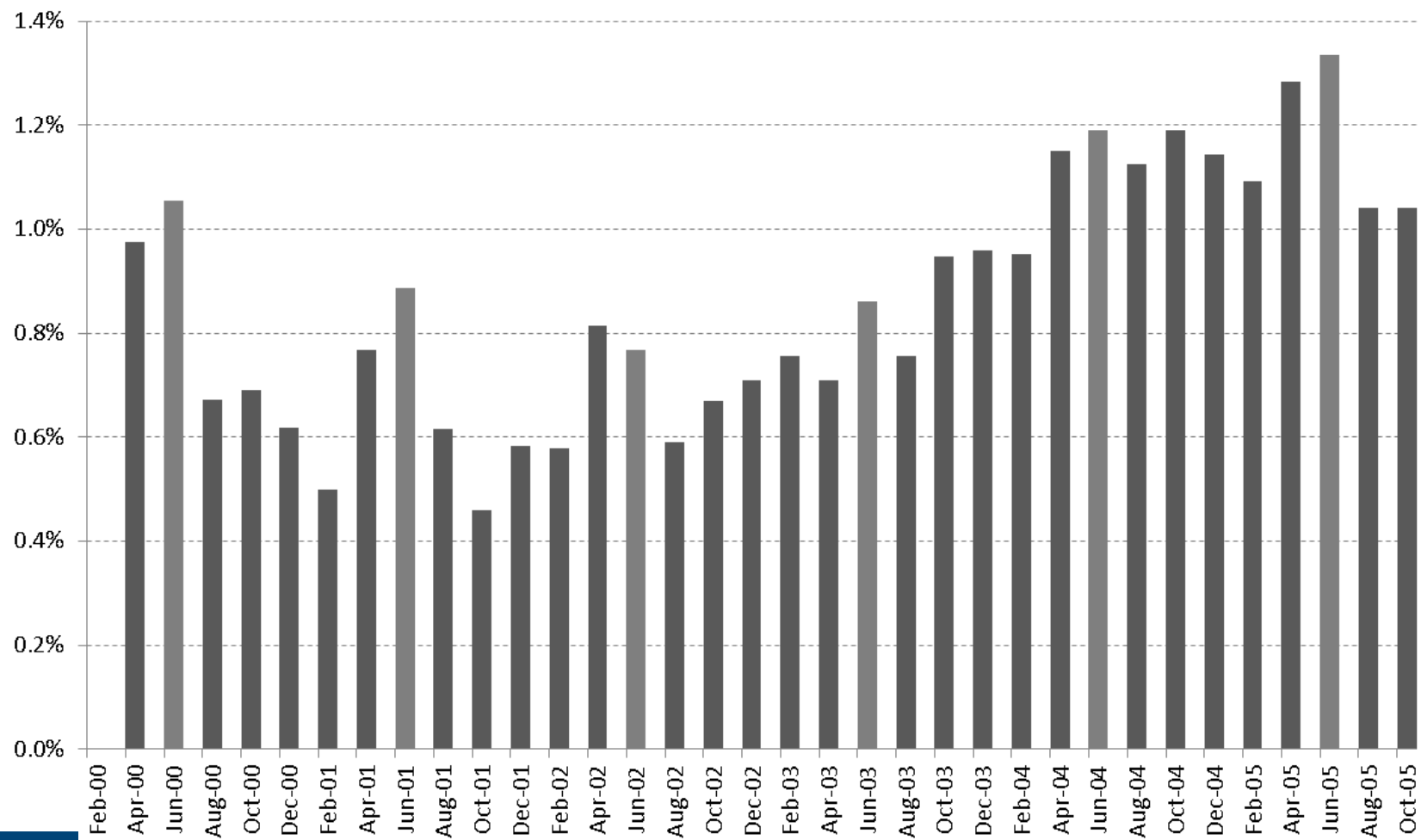


Background: identifying treatment and control

	Removal date												
last arrear receipt	Oct-03	Dec-03	Feb-04	Apr-04	Jun-04	Aug-04	Oct-04	Dec-04	Feb-05	Apr-05	Jun-05	Aug-05	Oct-05
Feb-00	26												
Apr-00	39												
Jun-00	31												
Aug-00	29												
Oct-00	20												
Dec-00	16	9											
Feb-01		10	12										
Apr-01			23	9									
Jun-01				23	15								
Aug-01					22	9							
Oct-01						12	6						
Dec-01							20	9					
Feb-02								10	17				
Apr-02									21	21			
Jun-02										18	9		
Aug-02											20	7	
Oct-02												12	9
Dec-02													22



Arrear receipt per observation date



- The causal interpretation of differences observed between individuals in control and treatment group crucially relies on a *ceteris paribus* condition about the composition of individuals in the two groups
- Credit outcomes for individuals in the control group should closely resemble what individuals in the treatment group would have experienced had the retention times be equal to three years



- Problematic : if individuals can select into control and/or treatment:
- We argue this is unlikely in our case:
 - Receipt of arrear is at least three years before removal
 - No public announcement of regime change
 - No outside 'political' decision making



Background: Descriptive statistics at average retention time of 3 years:

	mean	sd	min	max	N
<i>Treatment group (Regime 1)</i>					
age	45.89	14.92	22	85	125
male	0.54	0.50	0	1	125
income	1707.66	835.36	0	4682.00	125
income year before	1529.39	840.47	0	5228.00	125
credit score	28.75	22.24	8.53	94.75	125
loan applications	0.11	0.62	0	6	125
total limit	18469.67	34393.79	0	191960	125
total credit balance	16083.17	33843.78	0	191960	125
total number of credit	0.82	1.18	0	7	125
<i>Control group (Regime 2).</i>					
age	45.06	13.79	22	87	137
male	0.60	0.49	0	1	137
income	1622.66	1065.46	0	5342.00	137
income year before	1511.77	1052.96	0	4671.00	137
credit score	27.04	22.12	6.51	92.12	137
loan applications	0.08	0.36	0	4	137
total limit	19373.90	47917.72	0	267620	137
total credit balance	16194.68	34238.00	0	267620	137
total number of credit	0.83	1.33	0	8	137



Estimating the post removal effect of increased retention time

Using OLS

*Creditworthiness*_i^t =

$$\beta_0 + \beta_1 d_1 + \beta_2 d_1 * \text{postremoval} + \beta_3 d_2 * \text{postremoval} + \text{time}_{\text{dummies}} + \varepsilon_{ti}$$



Estimations: main findings

Dependent variable		[1] score	t-test p-values	[2] loan_applications	t-test p-values	[3] total_no_credit	t-test p-values	[4] total_limit	t-test p-values	[5] total_credit_balance	t-test p-values
all periods (two years)	(β1)	-1.11		-0.00		-0.15		-553.47		414.27	
		[0.74]		[0.97]		[0.39]		[0.93]		[0.94]	
	(β2)	-17.41***	0.26	0.13**	0.65	0.40*	0.01***	13157.38	0.66	11429.08	0.76
		[0.00]		[0.05]		[0.07]		[0.11]		[0.15]	
	(β3)	-14.25***		0.11***		-0.08		8905		8492.09	
		[0.00]		[0.01]		[0.57]		[0.22]		[0.22]	
<i>Separate OLS regressions (equation 1) with progressing horizons</i>											
two months	(β2)	-16.51***	0.79	0.15**	0.18	0.19	0.39	11124.3*	0.02**	9980.84*	0.02**
		[0.00]		[0.02]		[0.26]		[0.06]		[0.07]	
	(β3)	-15.51***		0.07		0.13		4155.39		3225.15	
		[0.00]		[0.15]		[0.37]		[0.38]		[0.48]	
half year	(β2)	-16.82***	0.54	0.13**	0.56	0.32	0.02**	15947.26**	0.00***	14459.46**	0.00***
		[0.00]		[0.04]		[0.11]		[0.03]		[0.03]	
	(β3)	-15.44***		0.10**		0.08		3205.49		2301.26	
		[0.00]		[0.03]		[0.59]		[0.55]		[0.65]	
year	(β2)	-17.00***	0.43	0.13*	0.66	0.37*	0.01***	16166.72**	0.01***	14485.99*	0.02**
		[0.00]		[0.05]		[0.09]		[0.03]		[0.05]	
	(β3)	-15.08***		0.11***		-0.01		2757.15		2247.05	
		[0.00]		[0.01]		[0.92]		[0.58]		[0.63]	
one and half years	(β2)	-17.08***	0.41	0.13*	0.62	0.39*	0.01***	14972.57*	0.15	13221.76*	0.2
		[0.00]		[0.05]		[0.08]		[0.05]		[0.08]	
	(β3)	-14.91***		0.11***		-0.06		5196.71		4829.78	
		[0.00]		[0.01]		[0.67]		[0.34]		[0.35]	
time fixed effects		yes		yes		yes		yes		yes	
max Observations		3,988		3,988		3,988		3,988		3,988	
individuals		262		262		262		262		262	



Effect of increased retention time on post removal default risk.

Kaplan Meier estimator, is nonparametric maximum likelihood

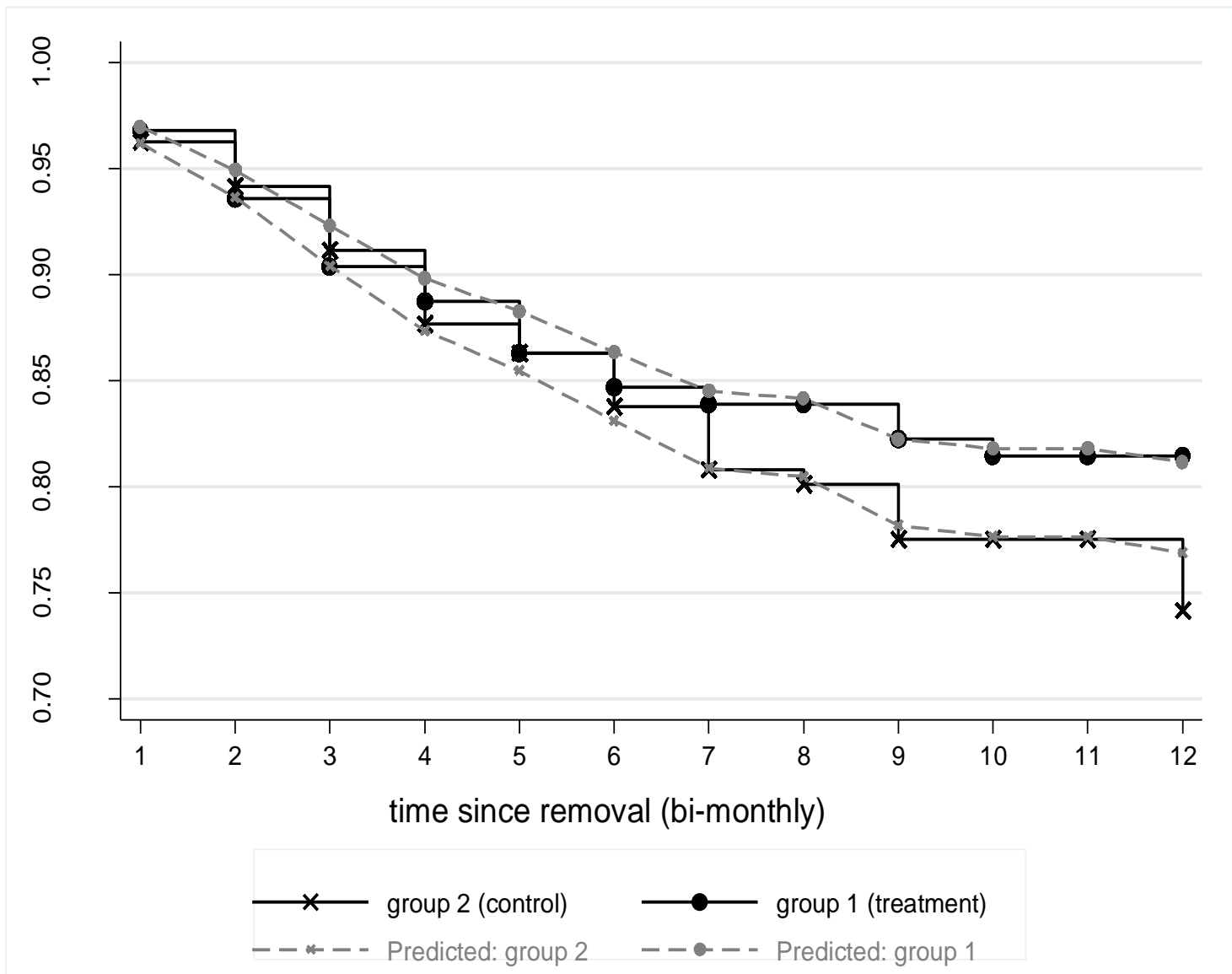
$$\hat{S} = \prod_{t_i \leq t} \frac{n_i - losses_i}{n_i}$$

Define surviving as not defaulting again

$n_i - losses_i$ number of survivors minus losses (censored cases)



Background: main findings



We find that prolonged retention times:

- Increases the need for and access to plus use of credit
- Reduce the likelihood to default again two years after removal.
- In both regimes only a minority of the individuals (less than 27 percent) receive a new arrear within two years after removal.
 - induce borrowers to exert greater effort along the lines of Vercammen (1995) and Elul and Gottardi (2007).
- Either interpretation opens the possibility that credit arrear removal is welfare enhancing



Optimal memory discussion

On the one hand,

prolonged retention times make individuals more prudent (post removal default risk is lower)

On the other hand,

prolonged retention times exclude individuals longer from credit. (hampers consumption smoothing)

Then again,

Access to and use off credit post removal increases compared to individuals with shorter arrear retention times.





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